

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD
HEALTH
ORGANIZATION



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Agenda Item 4(b)

CX/FFV 05/12/8
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JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FRESH FRUITS AND VEGETABLES

*12th Session,
Mexico City, Mexico, 16 - 20 May 2005*

PROPOSED DRAFT CODEX STANDARD FOR APPLES (AT STEP 3)

Codex Members and Observers wishing to submit comments on the attached **proposed draft Codex Standard for Apples (AT STEP 3)** are invited to do so **no later than 15 April 2005** to the Chairperson of the Committee, C.P. Miguel Aguilar Romo, Director General, Dirección General de Normas, Av. Puente de Tecamachalco 6, segundo piso, Lomas de Tecamachalco Sección Fuentes, C.P. 53950 Naucalpan de Juárez, Estado de México (Tels.: +(52) (55) 57 29 94 80, +(52) (55) 57 29 91 00, Ext. 43220, 43218; Fax: +(52) (55) 55 20 97 15, +(52) (55) 57 29 91 00, Ext. 43299; E-mail: codexmex@economia.gob.mx, jalopez@economia.gob.mx - *preferably* -) with a copy to the Secretary, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (Fax: +39 (06) 5705 4593; E-mail: codex@fao.org - *preferably* -).

BACKGROUND

1. A summary of the discussion on apples in Codex and the UN/ECE is given below as follows:

CODEX ALIMENTARIUS

11th Session of the Codex Committee on Fresh Fruits and Vegetables¹

2. The 11th Session of the Committee (Mexico City, September 2003) made some general and specific comments on the proposed draft Codex Standard for Apples. However, in view of time constraints, the Committee suspended the consideration of the document and consequently, it returned the proposed draft Standard to Step 2 while reconvening the drafting group under the direction of the United States of America to revise the text on the basis of the discussion held and the written comments submitted at that Session as well as in light of the developments in the UN/ECE Standard for Apples for circulation, additional comments at Step 3 and further consideration at its next Session.

¹ ALINORM 04/27/35, paras. 57 - 66. Reports and working documents of sessions of the Codex Alimentarius Commission and its subsidiary bodies can be downloaded from:
http://www.codexalimentarius.net/web/index_en.jsp.

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UN/ECE)**50th Session of the UN/ECE Specialized Section on Standardization of Fresh Fruits and Vegetables²****UN/ECE Standard for Apples**

3. The 50th Session of the UN/ECE Specialized Section on Standardization of Fresh Fruits and Vegetables (Geneva, May 2004) considered provisions for maturity requirements (including Brix values), flesh firmness, and weight sizing/uniformity in the UN/ECE Standard for Apples. A number of different views were expressed without introducing any changes into the UN/ECE Standard.

Status of the UN/ECE Standard for Apples

4. The Specialized Section agreed to keep the current provisions in the UN/ECE Standard for Apples while inviting all interested delegations to provide data on Brix values and flesh firmness for consideration at its Session in March 2005.

UN/ECE Recommendation for Apples

5. The Specialized Section also considered provisions for weight sizing/uniformity (UN/ECE Recommendation for Apples) and the list of varieties (UN/ECE Standard for Apples).

Weight Sizing/Uniformity

6. In regard to sizing by weight/uniformity, a number of options to facilitate their application was discussed but no changes were introduced into the UN/ECE Recommendation as more time was needed to study the different options available.

List of Varieties

7. With regard to the list of varieties, some amendments to the characteristics of varieties already included in the UN/ECE Standard as well as the addition of new varieties were discussed. No amendments were made to the characteristics of the varieties as they were listed with the characteristics corresponding to the majority of produce grown from these varieties. However, a number of new varieties were provisionally added to the UN/ECE Recommendation pending information on parentage and breeder to make sure that they will be added at the correct place in the List of Varieties of the UN/ECE Standard. In this connection, a Template for Updating the List of Varieties for Apples was prepared for consideration at the next session of the Specialized Section.

Status of the UN/ECE Recommendation for Apples

8. The Specialized Section agreed to keep the provisions on weight sizing/uniformity unchanged and to provisionally add a number of new varieties to the UN/ECE Recommendation. They would be kept in a trial period until November 2005.

60th Session of the UN/ECE Working Party on Agricultural Quality Standards³

9. The 60th Session of the Working Party on Agricultural Quality Standards (Geneva, November 2004) noted the recommendation of the Specialized Section on the UN/ECE Recommendation for Apples. In this regard, the Working Party stressed that applications for the inclusion of new varieties must demonstrate that they were new and traded internationally.

10. The Working Party clarified that no changes to the minimum sizes were currently envisaged in the UN/ECE Standard for Apples. In this regard, it noted that the European Union scheduled to align the minimum sizes for apples in the European legislation with those of the UN/ECE by 1 August 2005.

² TRADE/WP.7/GE.1/2004/25, paras. 66 - 96. Reports and working documents of sessions of the UN/ECE Working Party and its Specialized Sections as well as UN/ECE Standards can be downloaded from: <http://www.unece.org/trade/agr/meetings/hist2005.htm>. The UN/ECE Standard/Recommendation for Apples is also contained in working document CX/FFV 05/12/4.

An extract of the discussion on this matter at the UN/ECE Working Party on Agricultural Quality Standards and its Specialized Section on the Standardization of Fresh Fruits and Vegetables is provided in working document CX/FFV 05/12/3.

³ TRADE/WP.7/2004/10, paras. 36 - 37. See also footnote 2.

REQUEST FOR COMMENTS ON THE PROPOSED DRAFT CODEX STANDARD FOR APPLES

11. Codex Members and Observers are invited to comment at **STEP 3** on the attached revised **proposed draft Codex Standard for Apples** to be considered at the 12th Session of the Codex Committee on Fresh Fruits and Vegetables as directed above.

12. The Codex Secretariat would like to draw the attention of Codex Members and Observers that, when commenting on the list of varieties, due consideration should be given to the format in which they should be listed in Codex standards for fresh fruits and vegetables (see Appendix VII to ALINORM 04/27/35) especially for those varieties carrying trademarks which makes necessary the addition of special provisions for their inclusion in the Standard. This will avoid any legal action from trademark holders on the application of the Standard. In this respect, it is also necessary to clarify whether the list is intended to be exhaustive or non-exhaustive.

PROPOSED DRAFT CODEX STANDARD FOR APPLES

(AT STEP 3)

1. DEFINITION OF PRODUCE

This Standard applies to fruits of the commercial varieties (cultivars) of apples grown from *Malus domestica* Borkh of the *Rosaceae* family, to be supplied fresh to the consumer, after preparation and packaging. Apples for industrial processing are excluded¹.

2. PROVISIONS CONCERNING QUALITY

2.1 MINIMUM REQUIREMENTS

In all classes, subject to the special provisions for each class and the tolerances allowed, the apples must be:

- whole;
- sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- clean, practically free of any visible foreign matter;
- practically free of pests affecting the general appearance of the produce;
- practically free of damage caused by pests;
- free of abnormal external moisture, excluding condensation following removal from cold storage;
- free of any foreign smell and/or taste;
- free of internal water core².

2.1.1 The apples must have been carefully picked and have reached an appropriate degree of development and ripeness in accordance with criteria proper to the variety and to the area in which they are grown.

The development and condition of the apples must be such as to enable them:

- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

2.1.2 Maturity Requirements

Apples must be at a stage of development that enables them to continue the ripening process and to reach a stage of ripeness required in relation to the varietal characteristics³.

2.2 CLASSIFICATION

Apples are classified in three classes defined below:

2.2.1 “Extra” Class

Apples in this class must be of superior quality. They must be characteristic of the variety. They must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package⁴.

The stalk (stem) may be missing, provided the break is clean and the adjacent skin is not damaged.

2.2.2 Class I

Apples in this class must be of good quality. They must be characteristic of the variety. The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package⁴:

¹ Governments, when indicating the acceptance of the Codex Standard for Apples, should notify the Commission which provisions of the Standard would be accepted for application at the point of import, and which provisions would be accepted for application at the point of export.

² That exceeds the amounts, and within the defined dates defined in Annex II.

³ Maturity Indicators are currently being developed by the UN/ECE Specialized Session on Standardization of Fresh Fruit and Vegetables.

⁴ Skin and other defects must not exceed the limits as defined in Annex II.

- slight defects in shape, development, colouring, and scarring,
- slight skin or other defects.

The stalk (stem) may be missing, provided the break is clean and the adjacent skin is not damaged.

2.2.3 Class II

This class includes apples which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Section 2.1 above. The following defects, however, may be allowed provided that the apples retain their essential characteristics as regards the quality, the keeping quality and presentation⁴:

- defects in shape, development, colouring and scarring,
- skin or other defects.

The stalk (stem) may be missing, provided the break is clean and the adjacent skin is not damaged.

3. PROVISIONS CONCERNING SIZING

Size is determined by maximum diameter of the equatorial section or by weight of each apple.

To ensure there is uniformity of size within a package, the difference in diameter between fruit in the same package shall be limited to:

- 12.5 mm for all fruit classes packed in rows and layers, or 25% of the average individual fruit weight in the package.
- 15 mm for fruit packed in bulk or in pre-packaging, or 30% of the average individual fruit weight in the package.

4. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package, or in each lot for produce presented in bulk, for produce not satisfying the requirements of the class indicated; provided that at least one defective and one off-size apple shall be permitted in any package.

For tolerances of 10% or more, individual packages shall contain not more than one and one-half times the tolerance specified. For tolerances of less than 10%, individual packages shall contain not more than double the tolerance(s) specified.

4.1 QUALITY TOLERANCES

4.1.1 “Extra” Class

Five percent by number or weight of apples not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

Included therein shall be allowed not more than 1% for apples affected by decay or internal breakdown.

4.1.2 Class I

Ten percent by number or weight of apples not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

Included therein shall be allowed not more than 1% for apples affected by decay or internal breakdown.

4.1.3 Class II

Ten percent by number or weight of apples satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

Within this tolerance, a maximum of 5% by number or weight of fruit is allowed which may show the following defects:

- cork like blemishing (bitter pit) or water-core;
- slight damage resulting from unhealed broken skin /cracks;
- very slight traces of internal breakdown;
- presence of internal feeding pests;
- penetration of, or damage to the flesh caused by pests.

4.2 SIZE TOLERANCES

For all classes: 10% by number or weight of apples corresponding to the size immediately above and/or below that indicated on the package, a maximum variation of 5 mm or 10 grams is allowed below the minimum.

When size is designated by the numerical count for a container not more than 10% of the packages in the lot may fail to be fairly uniform⁵.

5. PROVISIONS CONCERNING PRESENTATION

5.1 UNIFORMITY

The contents of each package, or lot for produce presented in bulk, must be uniform and contain only apples of the same origin, quality, size (if sized) and may be of mixed varieties.

For “Extra” Class, colour should be uniform. If different varieties and/or sizes of apples are sold in the same package, uniformity of variety and/or size is not required.

The visible part of the contents of the package, or lot for produce presented in bulk, must be representative of the entire contents.

5.2 PACKAGING

Apples must be packed in such a way as to protect the produce properly. The materials used inside the package must be new⁶, clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

Apples shall be packed in each container in compliance with the Recommended International Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables (CAC/RCP 44-1995, Amd. 1-2004).

5.2.1 Description of Containers

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the apples. Packages, or lot for produce presented in bulk, must be free of all foreign matter and smell.

5.3 PRESENTATION

The apples may be presented under one of the following forms:

- in regular layers according to size;
- in open or closed containers;
- loose in consumer packages;
- shipping packages (master containers/cartons); or
- in bulk/pallet bins (retail display or promotion).

6. MARKING OR LABELLING

6.1 CONSUMER PACKAGES

In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991), the following specific provisions apply⁷:

6.1.1 Nature of Produce

If the produce is not visible from the outside, each package, or lot for produce presented in bulk, shall be labelled as to the name of the produce and may be labelled as to name of the variety, class and size/weight or the number of pieces presented in rows and layers.

⁵ Apples presented in layers the tolerances is for the master container and not individual layers.

⁶ For the purposes of this Standard, this includes recycled material of food-grade quality.

⁷ Unit packs of produce pre-packed for direct sale to the consumer shall not be subject to these marking provisions, but shall conform to national requirements. However, the markings referred to shall be shown on the transport packaging containing such unit packs.

6.2 NON-RETAIL CONTAINERS

Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, or in the documents accompanying the shipment⁸. For produce transported in bulk these particulars must appear on a document accompanying the goods.

6.2.1 Identification

Name and address of exporter, packer and/or dispatcher. Identification code (optional)⁹.

6.2.2 Nature of Produce

Name of the produce if the contents are not visible from the outside. Name of the variety or varieties (where appropriate).

6.2.3 Origin of Produce

Country of origin and, optionally, district where grown, or national, regional or local place name.

6.2.4 Commercial Identification

- Class;
- Size (if sized).

6.2.5 Official Inspection Mark (optional)

5. CONTAMINANTS

5.1 PESTICIDE RESIDUES

Apples shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

5.2 OTHER CONTAMINANTS

Apples shall comply with those maximum levels for contaminants established by the Codex Alimentarius Commission for this commodity.

8. HYGIENE

8.1 It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4-2003), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

8.2 The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

⁸ Governments, when indicating their acceptance of this Standard, should notify the Commission as to which provisions of this Section apply.

⁹ The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark.

GROUP A:	VARIETIES WITH RED COLOURING
“Extra” Class:	At least 2/3 of the surface of the fruit is red in colour
Class I:	At least ½ of the surface of the fruit is red in colour
Class II:	At least ¼ of the surface of the fruit is red in colour

VARIETIES WITH RED COLOURING

<i>Black Ben Davis</i>	<i>Red Rome</i>
<i>Black Stayman</i>	<i>Red Stayman (Staymared)</i>
<i>Carmio</i>	<i>Red York</i>
<i>Democrat</i>	<i>Reinette étoilée</i>
<i>Jonagored</i>	<i>Roja de Benjama (Verruga,</i>
<i>King David</i>	<i>Roja del Valle, Clavelina)</i>
<i>Red Delicious and mutations</i>	<i>Rose de Berne</i>
<i>Richared, Starking,</i>	<i>(Tenroy)</i>
<i>Starkrimson, Well Spur, Oregon Spur</i>	<i>Spartan</i>
<i>Fortuna Delicious,</i>	<i>Stark Delicious</i>
<i>Top Red and Royal Red</i>	<i>Winesap (Winter Winesap)</i>

GROUP B:	VARIETIES WITH SEMI-RED OR MIXED COLOURING
Extra Class:	At least ½ of the surface of the fruit has semi-red coloring
Class I:	At least 1/3 of the surface of the fruit has semi-red coloring
Class II:	At least 1/10 of the surface of the fruit has semi-red coloring

VARIETIES WITH SEMI-RED OR MIXED COLOURING

<i>Akane (Prime Rouge,</i>	<i>Ontario</i>
<i>Tohoku 3)</i>	<i>Ordinary Delicious</i>
<i>Belfort (Pella)</i>	<i>Ortell</i>
<i>Cameo</i>	<i>Paula Red</i>
<i>Cardinal</i>	<i>Piglos</i>
<i>Cherry Cox</i>	<i>Rambour Franc</i>
<i>Cortland</i>	<i>Red Berlepsch</i>
<i>Delicious Pilafa</i>	<i>Red Boskoop</i>
<i>Discovery</i>	<i>Red Gravensteiner</i>
<i>Gloster 69</i>	<i>Red James Grieve</i>
<i>Idared</i>	<i>Reineta Encarnada</i>
<i>Ingrid Marie</i>	<i>Reineta Roja del Canada</i>
<i>Jerseymac</i>	
<i><u>Jonamac</u></i>	<i>Stalapfel</i>
<i>Jonathan</i>	<i>Stayman Winesap</i>
<i>Katy (Katja)</i>	<i>Summerred</i>
<i>Lobo</i>	<i>Tydemans Early Worcester</i>
<i>McIntosh Red</i>	<i>(Tydemans Early)</i>
<i>Morgenduft</i>	<i>Wagener</i>
<i>(Rome Beauty)</i>	<i>Wealthy</i>
<i>Nueva Orleans</i>	<i>Worcester Pearmain</i>
<i>Odin</i>	<i>York</i>
<i>Red Fuji</i>	
<i>Red Gala</i>	
<i>Early McIntosh</i>	
<i>Beacon</i>	
<i>Tydemans Red</i>	
<i>Red Granny Smith</i>	
<i>Scirose</i>	
<i>Pacific Rose</i>	
<i>Jazz</i>	
<i>Scifresh</i>	

GROUP C:	VARIETIES WITH STRIPES AND SLIGHT RED COLOURING
Extra Class:	Blush cheek
Class I:	Tinge of color
Class II:	Tinge of color

VARIETIES WITH STRIPES AND SLIGHT RED COLOURING

<i>Abbondanza</i>	<i>Karmijn de Sonnaville</i>
<i>Alkmene</i>	<i>Kidd's Orange Red</i>
<i>Apollo</i>	<i>Laxton's Superb</i>
<i>Arlet</i>	<i>Lord Lambourne</i>
<i>Berlepsch</i>	<i>Maigold</i>
<i>Braeburn</i>	<i>Melrose</i>
<i>Carola (Kalco)</i>	<u><i>Nittany</i></u>
<i>Normanda</i>	
<i>Casanova de Alcobaça</i>	<i>Nueva Europa</i>
<i>Chata Encarnada</i>	<i>Oldenburg</i>
<i>Commercio</i>	<i>Pimona</i>
<i>Cox's Orange pippin</i>	<i>Pinova</i>
<i>(Cox orange and mutations) 2</i>	<i>Piros</i>
<i>Cunha (Riscadinha)</i>	<i>Pomme Raisin</i>
<i>Ellison's Orange</i>	<i>Red Mantet</i>
<i>Elstar</i>	<i>Reglindis</i>
<i>Fuji</i>	<i>Reine des Reinettes</i>
<i>Gala</i>	<i>(Gold Parmoné)</i>
<i>Imperatore</i>	<i>Rose de Caldaro (Kalterer)</i>
<i>(Emperor Alexander)</i>	<u><i>Royal Gala</i></u>
	<i>Shampion</i>
<i>Jamba</i>	<i>Stark's Earliest</i>
<i>Jonagold 3</i>	<u><i>Vista Bella</i></u>
<i>Winston</i>	
<i>Cripps Pink</i>	
<i>Gala Supreme</i>	
<i>Honeycrisp</i>	

GROUP D: GREEN AND YELLOW VARIETIES

Varieties of apples of which russetting is a characteristic of the skin, the russetting is not a defect if it corresponds to the typical appearance of the variety. Exhaustive list of varieties of international importance (this list could be completed at national level):

GREEN AND YELLOW VARIETIES

<i>Ashmead's Kernel</i>	<i>Laxton's Superb</i>
<i>Boskoop Group</i>	<i>Mingan (Peromangan Mingana)</i>
<i>Cox's Orange Group</i>	<i>Reinette du Canada</i>
<i>Dunn's Seedling</i>	<i>Reinette grise</i>
<i>Egremont Russet</i>	<i>Edmunds Pippin</i>
<i>Fortune</i>	<i>Sturmer Pippin</i>
<i>Golden Russet</i>	<i>Sunset</i>
<i>Ingrid Marie</i>	<i>Suntan</i>
<i>Karmijn de Sonnaville</i>	<i>Toreno</i>
<i>Kent</i>	<i>Yellow Newtown</i>
<i>Kidd's Orange Red</i>	<i>(Albermarle Pippin)</i>
<i>Granny Smith</i>	
<i>Ginger Gold</i>	
<i>Golden Supreme</i>	
<i>Parkdale Beauty</i>	
<i>Sunrise</i>	
<i>Firm Gold</i>	
<i>Prime Gold</i>	
<i>Ozark Gold</i>	
<i>Smoothee</i>	
<i>Mutsu</i>	
<i>Crispin</i>	
<i>Early Gold</i>	
<i>Lodi</i>	
<i>Yellow Transparent</i>	
<i>Molly Gold</i>	
<i>Blushing Golden</i>	
<i>Golden Delicious</i>	
<i>Winter Banana</i>	

ALLOWANCE FOR DEFECTS
MAXIMUM DEFECTS ALLOWED

Defects Allowed	“Extra” Class	Class I	Class II
Limb Rub (brown or light brown in color)	0.5cm ²	-----	-----
Russetting outside Calyx /stem cavity			
- smooth net-like	5% of surface area	15% of surface area	25% of surface area
- smooth solid	0.5cm ²	5% of surface area	10% of surface area
Slight bruising, <i>with slight discoloration</i> ⁽¹⁾	1.5 cm ²	2 cm ²	2.5 cm ²
Light Blemishes	5 cm²	2 cm ²	2.5 cm ²
Scabs (<i>Venturia inaequalis</i>), <i>dark blemishes, healed hail mark, and similar blemishes</i>	----	0.5 cm ²	1 cm ²
Stem Calyx cracks (healed or well cured)	----	0.5 cm	1 cm
Bruising with discoloration ⁽¹⁾	----	----	2.5 cm ²
Dark blemishes not blending with skin color	----	-----	2.5 cm ²
Maximum length of elongated shaped defects	----	2 cm	4 cm

⁽¹⁾ ***Bruises shall be visible or detectable without removal of the peel.***

Any combination of defects on an apple, excluding russetting, shall not exceed that of the largest single defect allowed in the class.

Application of tolerance for internal water core:

Internal water core shall not be considered as a factor of quality prior to:

- January 31st of the year following the year of production for apples produced in the Northern hemisphere:
- July 31st of the year of production for apples produced in the Southern hemisphere.

Internal Water core: is defined as water core existing at the core and extending to the vascular bundles, or when water core in three or more vascular bundles coalesces, or when water core exists in more than a slight degree in the area between the vascular bundles and the skin of the apple.

- **The degree of internal water core will be judged by cutting the apple cross-sectionally, midway between the calyx and stem end.**
- **Internal water core shall not be considered as a quality factor in the Fuji and Jonathan varieties at any time of the year.**

Condition After Storage or Transit: Decay and other deterioration which may have developed in apples after they have been in storage or transit shall be considered as affecting condition and not the quality in any of the classes.

LARGE-FRUITED VARIETIES

<i>Altländer</i>	<i>Grossherzog Friedrich</i>
<i>Apollo</i>	<i>von Baden</i>
<i>Arlet</i>	<i>Groupe des Calvilles</i>
<i>Belle de Boskoop and Mutations</i>	<i>Herma Honey gold</i>
<i>Belle fleur double</i>	<i>Horneburger</i>
<i>Bismarck</i>	<i>Howgate wonder</i>
<i>Black Ben Davis</i>	<i>Idared</i>
<i>Black Stayman</i>	<i>Imperatore</i>
<i>Blenheim</i>	<i>Jacob Fisher</i>
<i>Braeburn</i>	<i>Jacques Lebel</i>
<i>Bramley's Seedling</i>	<i>Jamba</i>
<i>(Bramley, Triomphe de Kiel)</i>	<i>James Grieve and mutations</i>
<i>Brettacher</i>	<i>Jester</i>
<i>Carola (Kalco)</i>	<i>Jonagold</i>
<i>Charden</i>	<i>Jonagored</i>
<i>Charles Ross</i>	<i>Jupiter</i>
<i>Cortland</i>	<i>Karmijn de Sonnaville</i>
<i>Cox pomona</i>	<i>Königin (The Queen)</i>
<i>Crimson Bramley</i>	<i>Lane's Prince Albert</i>
<i>Delicious Pilafa</i>	<i>Lemoen Apfel (Lemoenappel)</i>
<i>Democrat</i>	<i>Maigold</i>
<i>Elan</i>	<i>Melrose</i>
<i>Ellison's orange (Ellison)</i>	<i>Morgenduft (Rome Beauty)</i>
<i>Finkenwerder</i>	<i>Musch</i>
<i>Fortuna Delicious</i>	<i>Mutsu (Crispin)</i>
<i>Fuji</i>	<i>Normanda</i>
<i>Garcia</i>	<i>Notarapfel (Notaris,</i>
<i>Gelber Edel</i>	<i>Notarisappel)</i>
<i>Glorie von Holland</i>	<i>Nueva Orleans</i>
<i>Gloster 69</i>	<i>Ontario</i>
<i>Golden Delicious and mutations</i>	<i>Orleans Reinette</i>
<i>Graham (Graham Royal Jubilé)</i>	<i>Ozarkgold</i>
<i>Granny Smith</i>	<i>Pater v.d. Elsen</i>
<i>Gravensteiner</i>	<i>Pero de Cirio</i>
<i>Greensleeves</i>	<i>Pero Mingan</i>
<i>Piglos</i>	<i>Saure Gamerse (Gamerse zure)</i>
<i>Pinova</i>	<i>Septer</i>
<i>Piros</i>	<i>Shampion</i>
<i>Rambour d'hiver</i>	<i>Signe Tillisch</i>
<i>Red Delicious and</i>	<i>Starkrimson</i>
<i>mutations</i>	<i>Staymanred</i>
<i>Reglindis</i>	<i>Stayman Winesap</i>
<i>Reinetta de Orléans</i>	<i>Transparente de Croncels</i>
<i>Reinetta roja del Canada</i>	<i>(Croncels)</i>
<i>Reinette blanche and</i>	<i>Reinette Triomphe de Luxembourg</i>
<i>grise du Canada</i>	<i>Tydemans Early Worcester</i>
<i>Reinette de France</i>	<i>Winter Banana</i>
<i>Reinette de Landsberg</i>	<i>Zabergäu</i>
<i>Royal Red</i>	<i>Zigeunerin</i>